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## ABSTRACT

Although research has been conducted on who will relapse after having quit smoking in clinics, little has been done to determine the immediate precipitants of recidivism. A telephone hotline, manned by four experienced interviewers, was set up to receive calls from ex-smokers who had relapsed or who felt at high risk for relapse. A structured interview focused on the physical and social situation in which the relapse occurred and the events preceding the relapse, including the caller's thoughts, affect and behavior. Of 32 calls in which relapse had occurred, 83% were from women. Most relapse episodes occurred in the home and during the evening, while the relapsing smoker was engaged in work or social activities. Half felt anxious, suggesting work-related anxiety was a contributing factor. Stress, anger and depression were also often cited as factors. Withdrawal symptoms were less often reported. Contact with smoking-related cues was cited by callers reporting positive affect. The consumption of food, alcohol or drugs was the greatest single correlate of relapse. Since most callers reported no specific attempts at coping, ex-smokers may need to be appraised of the risk and provided with specialized coping skills. (NRS)

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# DETERMINANTS OF RELAPSE FOLLOWING SMOKING CESSATION

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Although much effort has gone into the development of behavioral programs for smoking cessation, the results have been disappointing. Their failing is well defined and, by now, well-known: although respectable rates of abstinence are obtained at end of treatment, the relapse rates are unacceptably high. Hunt and Matarazzo (1) estimated that 75-80% of those who quit smoking in clinics will relapse within six months. This finding has revolutionized the smoking cessation field, focusing much more attention on maintenance and relapse, than on the cessation process itself.

Despite this recent emphasis on maintenance, there has been relatively little research on the relapse process. An epidemiological study by Eisinger (2) showed that recidivists differ from successful abstainers in their responses to a survey. The two groups differed in the reasons they gave for wanting to quit, their expectations regarding their smoking behavior and its health consequences, and the place of smoking in their social milieu. Survey responses were obtained prospectively (i.e., prior to the relapses), suggesting that these factors may have causal influence on relapse.

Another prospective study of relapse was reported by Pomerleau, Adkins, and Pertschuck (3), who followed smokers who had participated in their smoking cessation clinics. They found that recidivists were distinguished by their historically higher frequency of smoking in negative affect states. In both studies, the variables which predicted recidivism differed from those which predicted initial cessation of smoking. This highlights the distinction between the two stages of the abstinence process, and the need for study of the relapse process.

While these studies tell us something about who will relapse, they

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tell us little about relapse itself. Although ongoing processes or personality traits may determine who will relapse, the relapses themselves necessarily take place at particular times and under particular circumstances. These particulars constitute the immediate causes or precipitants of relapse. Very little is known, however, about the 'topography' of the relapse process or the conditions under which it occurs. A description of relapses - when and where they occur, with what antecedents, in the presence of what stimuli, etc. - is a critical first step towards identifying the immediate precipitants of recidivism, which could, in turn, suggest interventions which would prevent relapse.

The major difficulty for such studies of relapse 'topography' is the fact that relapses occur in the ex-smoker's natural environment, away from the careful scrutiny which is possible in the researcher's laboratory. One solution is to obtain, at a more convenient time and place, the subject's retrospective recall of the relapse episode. Marlatt and Gordon (4) have recently published data on such retrospective reports of recidivists, focusing on the subject's recollection of what precipitated the relapse episode.

The limitation of this methodology is the extent to which it relies on the subject's powers of observation and recollection. The subject is relied upon not only to faithfully remember what transpired, but also to determine what is actually important in precipitating the relapse episode. This paper will present some preliminary data on relapse episodes collected by an alternative method which attempts to reduce these difficulties.

In order to establish a channel of communication with ex-smokers at risk for relapse, a telephone hotline was established. The availability of the hotline was made known to smokers who had recently quit through a number of smoking cessation clinics. These ex-smokers were encouraged to call the 'Stay-Quit Line' if and when they experienced a relapse. It was emphasized that the calls would be of greatest value to both the caller and the research if they were made as immediately as possible, while the caller was still in the relevant situation. Calls were also accepted from ex-smokers who had not actually relapsed, but were in a 'relapse crisis' in which they felt themselves to be very close to relapse and were calling the hotline as a last resort.

Calls to the hotline were handled by experienced interviewers (N=4) who debrief each caller regarding the details of the crisis or relapse episode. (Three of the interviewers are advanced doctoral candidates in clinical psychology with many hours of training and experience in interviewing. The fourth is a college graduate, also with much experience in interviewing, and with additional experience in hotline work and smoking cessation treatments. All were specifically trained to conduct debriefings of relapse episodes.)

Using a structured interview schedule, the interviewer performs a behavioral and situational analysis of the episode. Among the data

collected from each caller are descriptions of the physical and social setting in which the relapse episode occurred, and a detailed account of the events preceding the relapse, including the caller's thoughts, affect, and behavior. Data is also collected regarding the caller's attempts, either through cognitions or behavior, to cope with the crisis and forestall relapse. Finally, a behavioral prescription or program, designed on the basis of the preceding analysis, is recommended to the caller. (Follow up data are currently being collected in order to evaluate these interventions and the hotline as a whole.)

Note that the use of a live structured interview allows the interviewer to gather information that might otherwise not be retrievable. The interviewers survey the relapse situation comprehensively; attending to aspects of the episode which the caller might not notice nor consider important, and would not recall at a later date. For example, some callers do not normally attend to their affective state preceding the episode, and seem surprised to be questioned about it. A debriefing which focused primarily on the caller's perceptions of the episode's precipitants might fail to include this information, which might in fact be crucial to understanding relapse. Similarly, were the debriefing to be conducted much after the episode, the caller might well not remember or misremember this information.

Data has been compiled on 101 calls; of these, 32 dealt with relapse episodes in which the caller had already smoked. This paper will focus on these actual relapse episodes. (Data on the 'relapse crises' and their relationship to actual relapse episodes is currently being analyzed and will be reported in the near future. Preliminary findings suggest that these crises very much resemble relapse episodes.) Most of the relapsed smokers who contacted the hotline were women (83%) who had participated in a formal smoking cessation program (81%). Before quitting, they had smoked an average of 35.4 cigarettes per day (median=30) for 18.4 years (median=16). The relapse episode reported to the hotline occurred an average of 22.7 days (median=10) following cessation of smoking. Thus, the sample is more representative of early relapse episodes. Half of the recidivists smoked only one cigarette in the reported relapse episode; only 15.3% smoked more than two. A follow-up is currently being conducted to determine the subsequent course of these relapse episodes. Preliminary data suggest that the majority result in resumption of regular smoking.

A descriptive account of the settings in which relapse takes place can be reconstructed from the hotline interviews. Most of the relapse episodes occurred in the ex-smoker's home (57%), the remainder being divided between the workplace (18%) and other settings (25%), including restaurants, others' homes, and outdoors. Evenings were the times of greatest risk for relapse, accounting for fully half of the episodes. Shiffman (5) has reported that craving for cigarettes peaks during the evening hours, and cites some unpublished previous work on the prevalence of relapse in the evening. Most commonly, the relapsing smoker was either engaged in work activities (39%) or was socializing



(35%) prior to the relapse. On about half of these occasions, other people were present, usually coworkers or family members.

Folklore has it that emotional crises are the major causes of relapse. Indeed, we found that the stimulus most often identified by the caller as the cue which precipitated the relapse episode was an affective response, which was cited by 65.2% of the sample. Since each caller was questioned about his/her affect, one can describe the affective states which precede relapse even where the recidivist does not cite the affect as a cause of the relapse. Among the recidivists calling the hotline, 50% indicated they felt anxious. These anxious callers were overrepresented among those who relapsed at work (Chi Squared=9.0, df=1,  $p<.005$ ), suggesting that work-related anxiety was a contributing factor.

The hotline reports generally validate the commonly held notion that stress plays a part in relapse. Fully two thirds of the callers were under 'fairly' or 'very' severe stress the day of the relapse. Among the other commonly reported affects was anger, which was mentioned by 39.9% of the sample. The callers who were angry universally reported that their affective reaction was the precipitating cue which triggered their relapses (Fisher's Exact Test,  $p<.06$ ), all of which occurred in the absence of specific smoking-related cues (Fisher's exact Test,  $p<.06$ ). For these ex-smokers, the affect itself appears to be a sufficient stimulus for relapse.

These data on the role of negative affects in relapse are consistent with Pomerleau, et al's (3) findings that people who tend to smoke when experiencing such affect are the most likely to relapse. Apparently, these smokers continue to be vulnerable to these situations after they have quit smoking. These results are also in line with those reported by Marlatt and Gordon (4), who found that 55% of relapses could be attributed to either negative emotional states or interpersonal conflict.

Surprisingly, 34.6% of the recidivists indicated that they were somewhat depressed or suffering from low mood prior to the relapse episode. While anxiety and anger are generally thought to be associated with relapse episodes or with smoking, these data suggest that depressive mood may also be an important affective factor in relapse and, by implication, in smoking. What role depression might play in these relapses is not clear from these data. It may be that the depressed ex-smoker seeks relief from his depression in the stimulating effects of smoking. Alternatively, smoking may influence relapse indirectly, by impairing the ex-smoker's ability to cope with otherwise manageable stresses or pressures to relapse. At any rate, this finding suggests that smokers might profit from being taught how to cope with mild depression as part of their smoking cessation therapy. It is also conceivable that this finding is an artifact of the method by which data was collected, since depressed persons might be more predisposed to seek help from a hotline. This alternative hypothesis is being tested by making follow up calls which are initiated by the hotline rather than by the ex-smoker, thereby

eliminating this artifact.

Shiffman (5) has suggested that withdrawal symptoms play a major role in precipitating relapse. The hotline data do not appear to support this hypothesis. Only 31.8% of the recidivists complained of withdrawal symptoms. While the discrepancy may be partially explained by the fact that craving was not included in the current definition of withdrawal symptoms, these data certainly cast doubt on Shiffman's explanation of relapse. Among those recidivists who did experience withdrawal symptoms, physical symptoms (e.g.; lightheadedness, headache) were the most commonly reported (57.2% of those reporting symptoms). Nearly a fifth of the sample complained of some impairment of function due to withdrawal symptoms. These were generally the ex-smokers who relapsed at work, apparently in an attempt to recover this lost function.

Another commonly implicated precipitant of relapse is contact with smoking-related cues. In 40% of the cases recorded, another smoker was smoking in view of the caller, and 30.8% of the recidivists reported feeling cued by contact with smoking stimuli, such as cigarettes, matches, or other smokers. These stimuli appeared to play a greater role in relapse episodes which occurred when the caller was experiencing positive, rather than negative feelings. While 75% of the callers who described their mood as "happy" were triggered by smoking-specific stimuli, none of the callers who reported feeling angry implicated such cues in their relapse ("happy" and specific stimuli significantly related, Fisher's Exact Test,  $p < .10$ ; "angry" negatively related to specific stimuli, Fisher's Exact Test,  $< .06$ ). This suggests that there may be two species of relapse episodes. One is precipitated by negative affect in the absence of smoking-specific stimuli; the other is precipitated by smoking-specific stimuli in the presence of positive affect.

The hotline data suggest that consumption of food, alcohol, or drugs is an important antecedent of relapse. Although such consumption is cited by the recidivists as a precipitant of relapse only 15.4% of the time, there was a strong temporal association between the two events. Fully 70% of the relapse episodes were associated with food (35%), alcohol (30%), or drug (12.5%) consumption, possibly reflecting a causal link between the substances and relapse. Alternatively, it may reflect the influence of an underlying determinant of both the relapse and the consumption behavior. Anxiety, for example, could influence both consumption and relapse. In any case, the data show that such consumption is the greatest single correlate of relapse. This suggests that ex-smokers may need to be appraised of the risk and provided with specialized coping skills.

Hotline callers were asked to describe their attempts to forestall relapse through behavioral and/or cognitive interventions. This inquiry yielded discouraging data. While many recidivists described attempting, but failing, to control their behavior, many reported no specific attempts at coping. Nearly half (47.6%) had failed to attempt any behavioral intervention, and an even greater number (61.9%) made no

use of cognitive coping mechanisms. Thus, many relapses occur because the ex-smoker is either unable to apply any coping mechanism or chooses to succumb to his impulse to smoke.

These initial observations of relapses following cessation of cigarette smoking represent an early step in our attempts to understand the causes of relapse. The data tend to confirm much of what has long been "known" anecdotally. Stress and negative affect, for example, do indeed appear to play a major role in relapse, as does contact with smoking-related stimuli. Other concepts, however, such as the hypothesized importance of withdrawal symptoms in precipitating relapse, are called into question by the data. Finally, the data suggest that relapse may also be influenced by other factors, such as depression, which have not previously received much attention. The use of a telephone hotline thus appears to be a promising tool for research into the relapse process. Closer investigation of the details of relapse episodes may well continue to yield new data regarding the causes, and ultimately the prevention, of relapse.

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